

WHAT IS CLAIMED IS:

1. A diagnostic X-ray system, comprising:

an X-ray generating unit that radiates an X-ray to
a subject at a predetermined X-ray loading factor;

5 a beam limiting unit that limits a radiation
region of the X-ray through beam limiting;

an image generating unit that generates an image
of a predetermined size based on the X-ray passing
through an interior of a body of the subject;

10 a brightness computing unit that computes
brightness related to a predetermined region within
the image;

a controller that determines an X-ray loading
factor based on the brightness computed in said
15 brightness computing unit and performs feedback control
of the X-ray loading factor with respect to said X-ray
generating unit; and

a judging unit that judges whether a region
corresponding to the beam limiting superposes the
20 predetermined region within the image,

wherein when said judging unit judges superposi-
tion, said brightness computing unit transforms the
predetermined region to a given region that does not
superpose the region corresponding to the beam
25 limiting, and computes brightness based on the given
region.

2. The diagnostic X-ray system according to

claim 1, wherein:

the predetermined region is of a shape and a size corresponding to a region to be diagnosed.

3. The diagnostic X-ray system according to
5 claim 1, wherein:

brightness computation related to the given region performed by said brightness computing unit and the feedback control of an X-ray loading factor performed by said controller based on the given region are
10 performed in real time in association with a beam limiting manipulation by said beam limiting unit.

4. The diagnostic X-ray system according to claim 2, wherein:

brightness computation related to the given region
15 performed by said brightness computing unit and the feedback control of an X-ray loading factor performed by said controller based on the given region are performed in real time in association with a beam limiting manipulation by said beam limiting unit.

20 5. A diagnostic X-ray system, comprising:
an X-ray generating unit that radiates an X-ray to a subject at a predetermined X-ray loading factor;
a beam limiting unit that limits a radiation region of the X-ray through beam limiting;
25 an image generating unit that generates an image of a predetermined size based on the X-ray passing through an interior of a body of the subject;

a brightness computing unit that computes
brightness related to a first region within the image
when X-ray fluoroscopy is performed, and computes
brightness related to a second region within the image
5 when X-ray imaging is performed;

a controller that determines an X-ray loading
factor based on the brightness computed in said
brightness computing unit and performs feedback control
of the X-ray loading factor with respect to said X-ray
10 generating unit; and

a judging unit that judges whether a region
corresponding to the beam limiting superposes the first
region or the second region within the image, wherein:

when said judging unit judges that the region
15 corresponding to the beam limiting superposes the first
region in the X-ray fluoroscopy, said brightness
computing unit transforms the first region to a third
region that does not superpose the region corresponding
to the beam limiting, and computes brightness based on
20 the third region;

when said judging unit judges that the region
corresponding to the beam limiting does not superpose
the second region in the X-ray imaging, said brightness
computing unit computes brightness based on the second
25 region; and

when said judging unit judges that the region
corresponding to the beam limiting superposes the

second region in the X-ray imaging, said brightness computing unit transforms the second region to the third region and computes brightness based on the third region.

5 6. The diagnostic X-ray system according to claim 5, wherein:
the first or second region is of a shape and a size corresponding to a region to be diagnosed.

10 7. The diagnostic X-ray system according to claim 5, wherein:
brightness computation related to at least one of the first, second, and third regions performed by said brightness computing unit, and the feedback control performed by said controller are performed in real time
15 in association with a beam limiting manipulation by said beam limiting unit.

 8. The diagnostic X-ray system according to claim 6, wherein:
brightness computation related to at least one of
20 the first, second, and third regions performed by said brightness computing unit, and the feedback control performed by said controller are performed in real time in association with a beam limiting manipulation by said beam limiting unit.

25 9. A diagnostic X-ray system, comprising:
X-ray generating means for radiating an X-ray to a subject at a predetermined X-ray loading factor;

beam limiting means for limiting a radiation region of the X-ray;

image generating means for generating an image of a predetermined size based on the X-ray passing through
5 an interior of a body of the subject;

brightness computing means for computing brightness related to a predetermined region within the image;

control means for determining an X-ray loading
10 factor based on the brightness computed in said brightness computing means and executing feedback control of the X-ray loading factor with respect to said X-ray generating means; and

judging means for judging whether a region
15 affected by said beam limiting means superposes the predetermined region within the image,

wherein when said judging means judges superposition, said brightness computing means transforms the predetermined region to a given region that does not
20 superpose the region affected by said beam limiting means, and computes brightness based on the given region.

10. The diagnostic X-ray system according to claim 9, wherein:
25 the predetermined region is of a shape and a size corresponding to a region to be diagnosed.

11. The diagnostic X-ray system according to

claim 9, wherein:

brightness computation related to the given region
performed by said brightness computing means and the
feedback control performed by said control means are
5 performed in real time in association with a beam
limiting manipulation by said beam limiting means.

12. The diagnostic X-ray system according to
claim 10, wherein:

brightness computation related to the given region
10 performed by said brightness computing means and the
feedback control performed by said control means are
performed in real time in association with a beam
limiting manipulation by said beam limiting means.

13. A diagnostic X-ray system, comprising:

15 X-ray generating means for radiating an X-ray to
a subject at a predetermined X-ray loading factor;

beam limiting means for limiting a radiation
region of the X-ray through beam limiting;

20 image generating means for generating an image of
a predetermined size based on the X-ray passing through
an interior of a body of the subject;

brightness computing means for computing
brightness related to a first region within the image
when X-ray fluoroscopy is performed, and computing
25 brightness related to a second region within the image
when X-ray imaging is performed;

control means for determining an X-ray loading

factor based on the brightness computed in said
brightness computing means and executing feedback
control of the X-ray loading factor with respect to
said X-ray generating means; and

5 judging means for judging whether a region
corresponding to the beam limiting superposes the first
region or the second region within the image, wherein:

 when said judging means judges that the region
corresponding to the beam limiting superposes the first
10 region in the X-ray fluoroscopy, said brightness
computing means transforms the first region to a third
region that does not superpose the region corresponding
to the beam limiting, and computes brightness based on
the third region;

15 when said judging means judges that the region
corresponding to the beam limiting does not superpose
the second region in the X-ray imaging, said brightness
computing means computes brightness based on the second
region; and

20 when said judging means judges that the region
corresponding to the beam limiting superposes the
second region in the X-ray imaging, said brightness
computing means transforms the second region to the
third region and computes brightness based on the third
25 region.

14. The diagnostic X-ray system according to
claim 13, wherein:

the first or second region is of a shape and a size corresponding to a region to be diagnosed.

15. The diagnostic X-ray system according to claim 13, wherein:

5 brightness computation related to at least one of
the first, second, and third regions performed by said
brightness computing means, and the feedback control
performed by said control means are performed in real
time in association with a beam limiting manipulation
10 by said beam limiting means.

16. The diagnostic X-ray system according to claim 14, wherein:

 brightness computation related to at least one of
the first, second, and third regions performed by said
15 brightness computing means, and the feedback control
performed by said control means are performed in real
time in association with a beam limiting manipulation
by said beam limiting means.